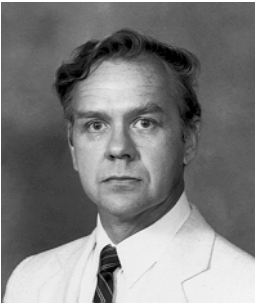


Space Weather



William F. Bailey

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Dr. Bailey's research interests focus on computer simulations of plasma dynamics. He has served on the Engineering Physics Department Faculty since 1979, is currently the Chairman of the Graduate Applied Physics Program, and has published more than 20 technical articles and reports.



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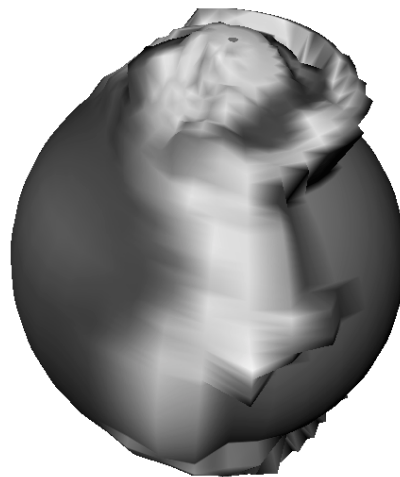
Maj. Della-Rose specializes in the structure and dynamics of the magnetosphere, ionosphere, and thermosphere. He has served on the Engineering Physics faculty since 1999. Previously, Maj Della-Rose was the HQ Air Force Space Command focal point for space weather support, providing daily space weather briefings to the North American Aerospace Defense Command. He also served at the Air Force Space Forecast Center and supervised the operational transition of several state-of-the-art space weather computer models.

Research Areas

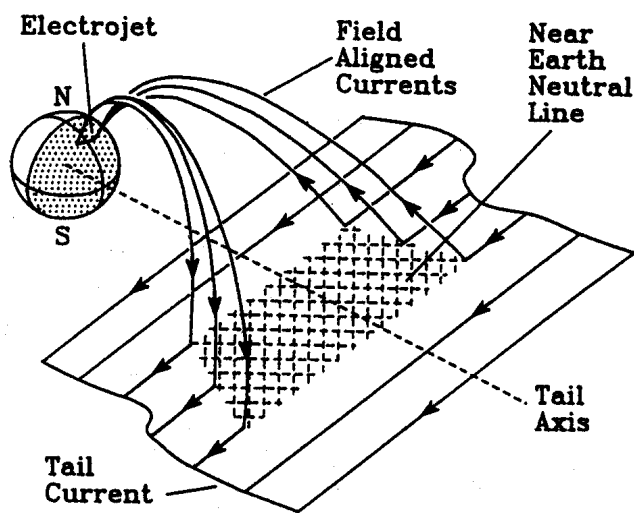
- Geomagnetism
- Space Weather Modeling
- Operational Assessments of System Impacts due to Space Weather

Recent and Ongoing Research

Recent work has included validation efforts for several state-of-the-art space weather computer models of the magnetosphere-ionosphere system. In addition, a Windows-based code to compute indices of geomagnetic activity using a new technique has been validated and applied to a newly operational magnetometer site in Northern Utah. Current work includes validation and characterization of space weather data collected by the Defense Meteorological Satellite Program (DMSP). The results of this work will greatly benefit the next generation of space weather prediction models, which will rely heavily on an “artificially intelligent” combination of observations and physics-based codes.



Global simulation of ionospheric E-region peak plasma density versus height



Magnetosphere-Ionosphere current flow during a geomagnetic storm.

Facilities

A suite of Silicon Graphics computers, including four O2s and three dual-processor Octanes, are available to design and test space plasma computer models. For larger computational requirements, there is a close collaboration between the Air Force Institute of Technology and the world-class ASC Major Shared Resource Center, providing access to state-of-the-art parallel processing capabilities and high-end visualization tools. Finally, access to the Air Force Research Lab's large space weather observation data base (both satellite- and ground-based) provides an extensive benchmarking and validation capability.

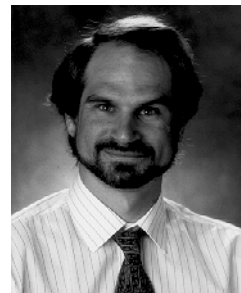


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Dr. Wolf's research interests are in the areas of experimental atomic & molecular spectroscopy, reactive and non-reactive collision kinetics, and ionospheric and atmospheric chemistry. He joined the faculty in 1994 and has published over 25 technical articles and reports. Dr. Wolf is currently the Assistant Dean for Academic Affairs.



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Dr. Weeks' research focuses on quantum mechanical wave packet models of molecular reaction dynamics, optical and electronic properties of multi quantum well devices, and the near earth space environment. He has been on the faculty since 1993 and has published over 30 technical articles and reports.